

# Building a Solar Economy: A Wisconsin Perspective



**Nick Hylla**

Midwest Renewable Energy Association

# About the MREA



The MREA is a non-profit education organization, established in 1990.

- 21<sup>th</sup> Annual Energy Fair  
June 18-20, 2010
- Hands-on Workshops
- Certified Site Assessors
- Demonstration Site
- Solar Thermal '10 September  
30 & October 1, 2010



**midwest renewable energy association**

# MREA Site Assessment Training

## PV SITE ASSESSOR FLOW CHART

### Core Courses



\* See [www.mreacsa.com](http://www.mreacsa.com) for additional approved training programs for MREA site assessment certification.

## SHW SITE ASSESSOR FLOW CHART

### Core Courses



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## WIND SITE ASSESSOR FLOW CHART

### Core Courses

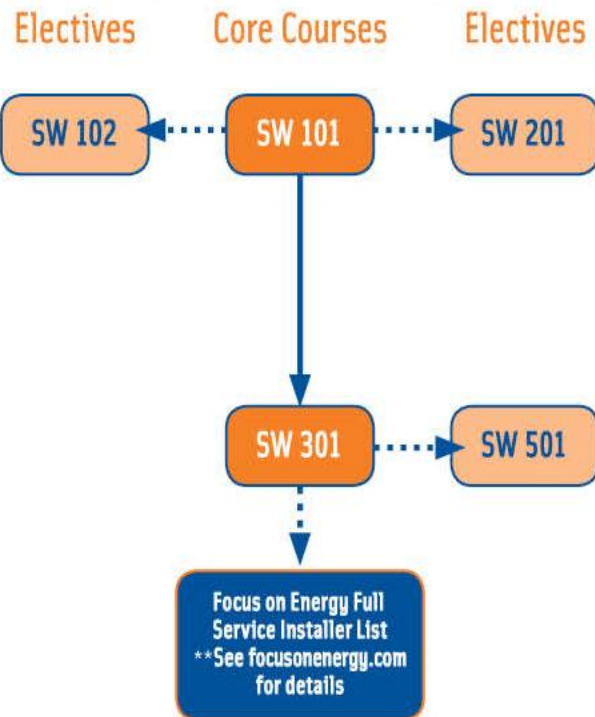


\* See [www.mreacsa.com](http://www.mreacsa.com) for additional approved training programs for MREA site assessment certification.

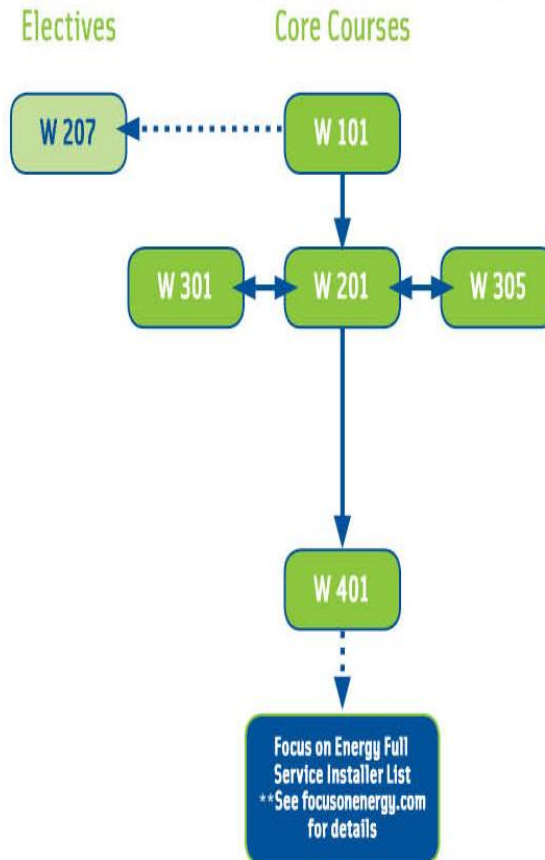


# MREA Installer Training

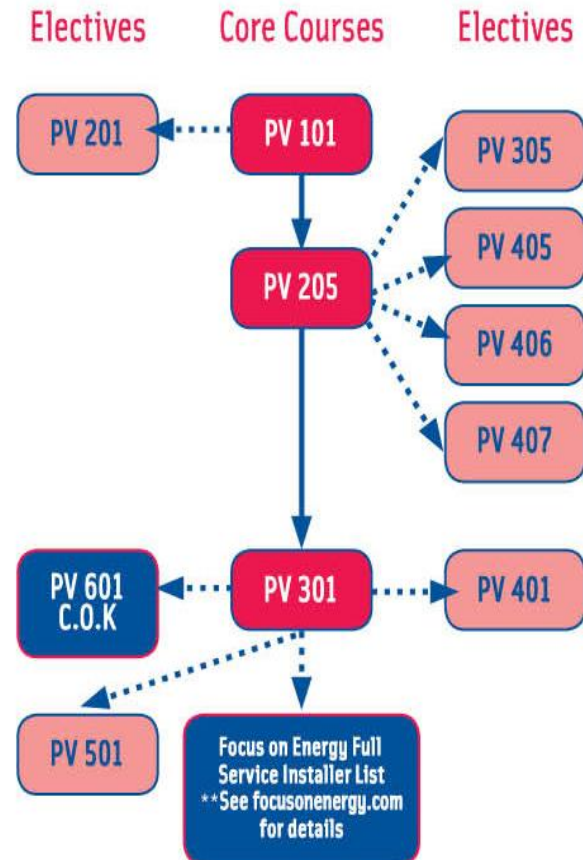
## SHW INSTALLER FLOW CHART



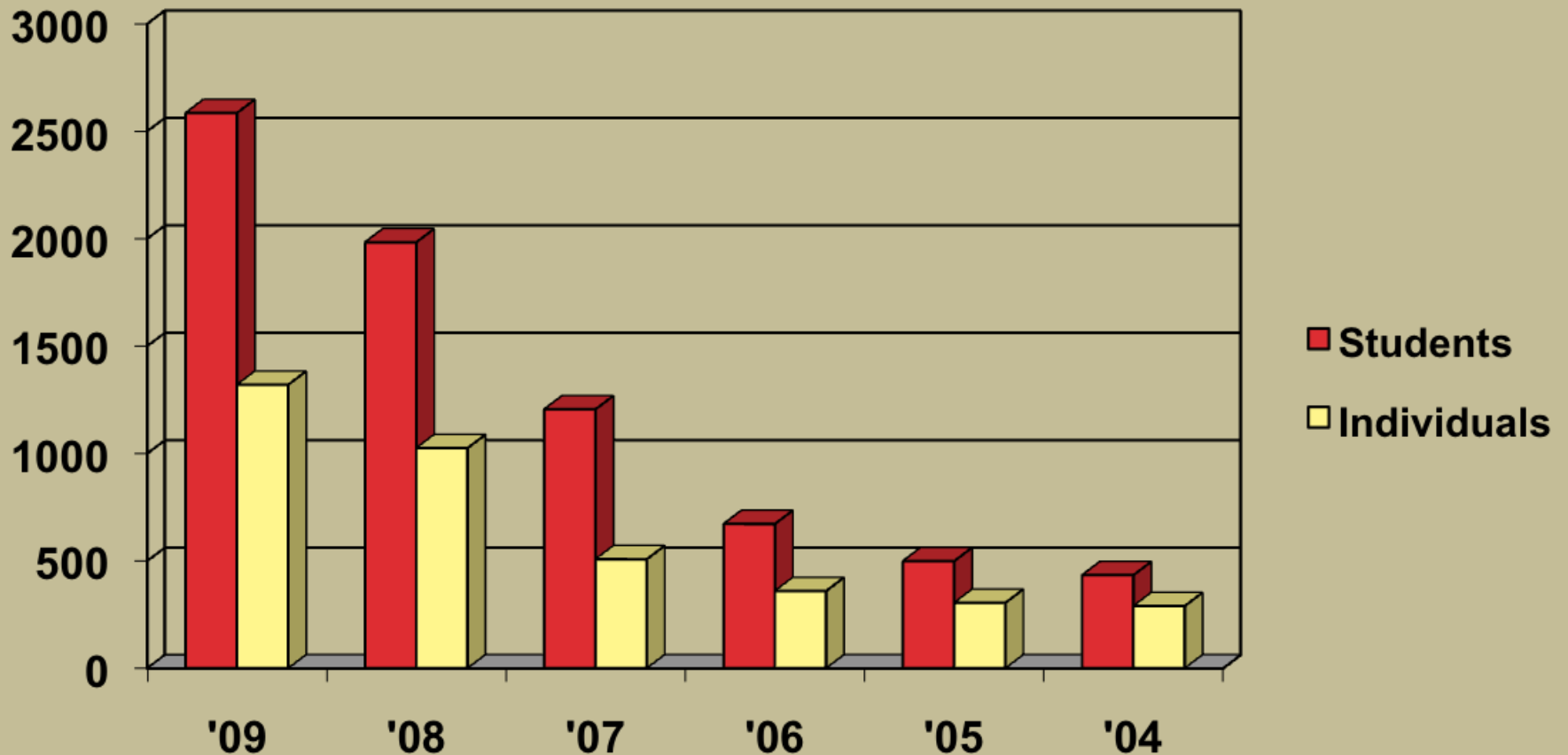
## WIND INSTALLER FLOW CHART



## PV INSTALLER FLOW CHART



# MREA Past – Workshop Attendance



# MREA Present - Market Transformation



# Market Framework: Transformation Goals

- Energy Independence
- Greenhouse Gas Reduction
- Green Workforce Development



# Market Trend - Innovation

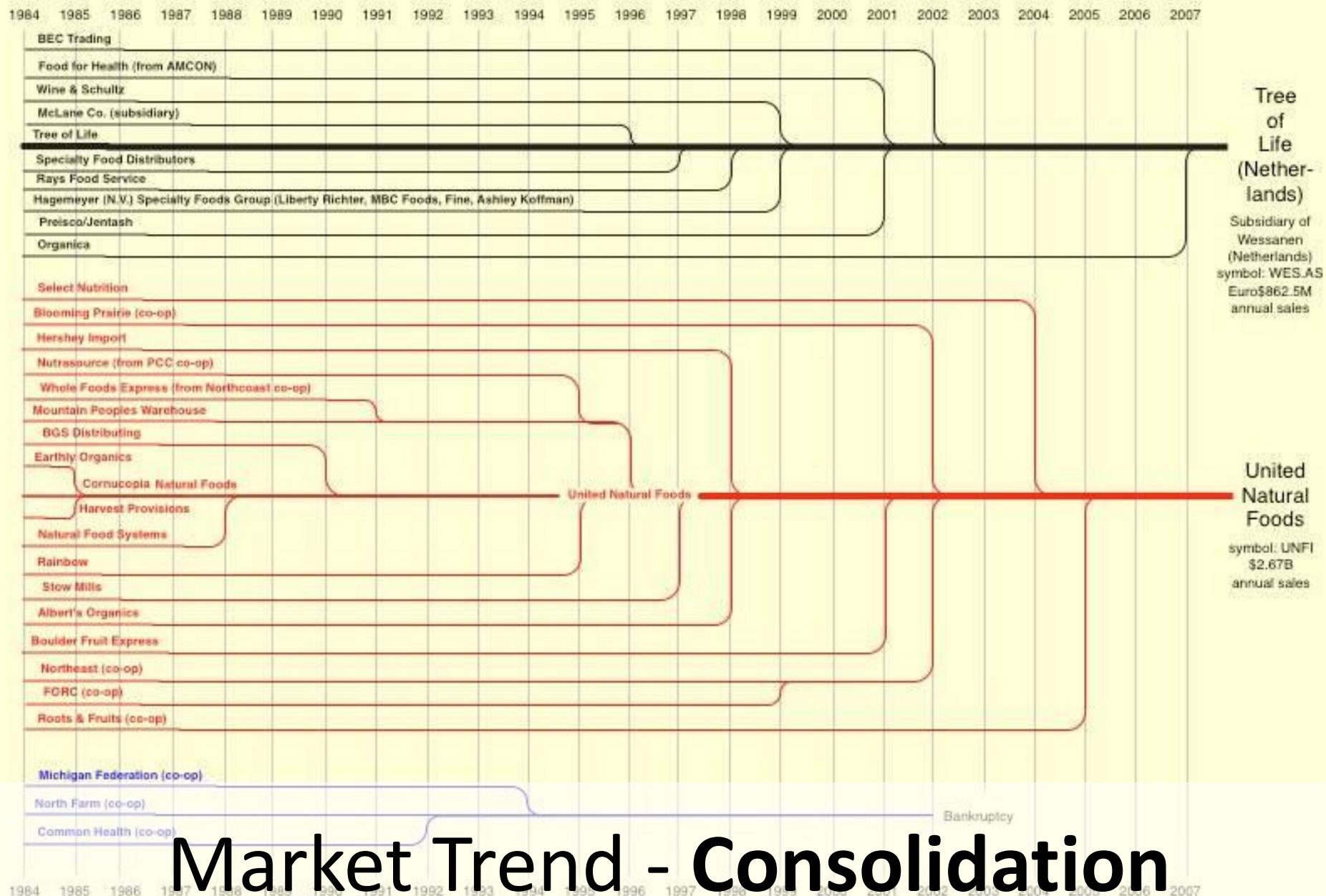




# Market Trend - **Expansion**



# Organic Industry Structure: Distributor Acquisitions and Mergers, 1984-2007



# Market Framework

## Solar Training Pillars

- A professional standard **provides the foundation** for curriculum
- Accreditation **provides the framework** for program development
- The workforce demand **provides the initiative** for educational institutions



# Market Framework

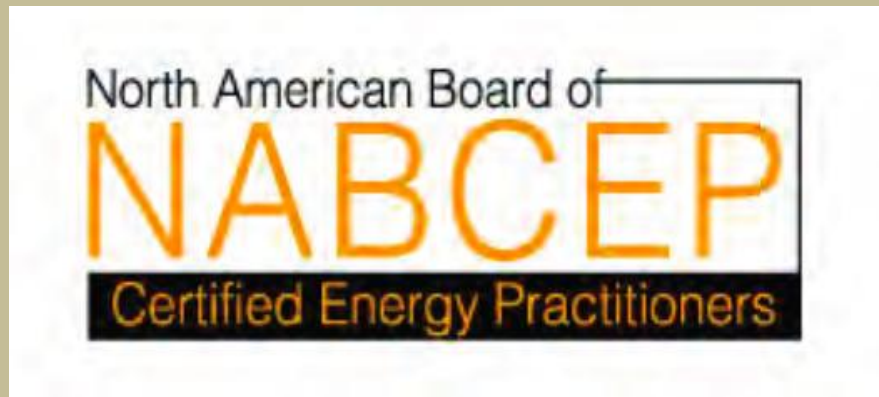
## Professional Certification

### NABCEP Installer Certification

- Continental Standard (Job Task Analysis)
- Certification, not training
- Certification requires education, experience, and testing
- Shown in inspections to improve system installation quality (NYSERDA, 2008)
- Gateway to State Incentives

# Market Framework

## Professional Certification



[www.nabcep.org](http://www.nabcep.org)

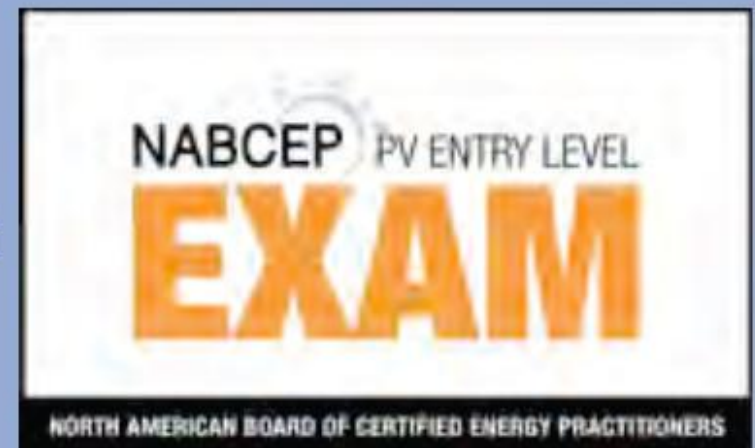
### ***NABCEP PV INDUSTRY CAREER PATHWAYS***



# PV Entry Level

## The NABCEP PV Entry Level Exam -

- Sets a benchmark of knowledge that employers use when assessing potential job candidates.
- Is an entry point for careers in PV; over 20% of recent PV Installer Certificants have previously passed the EL exam.
- Computer based testing is now available at 200 test centers across the US and Canada.





# Market Framework Analysis and Advocacy

Interstate  
Renewable  
Energy  
Council

irecusa.org



## CONNECTING TO THE GRID

Learn about policies, compensation and technical information for connecting renewable energy to the grid.

[Read More](#)



## ISPQ ACCREDITATION & CERTIFICATION

Assess programs and trainers to ensure quality in renewable energy instruction and course content.

[Read More](#)



## WORKFORCE DEVELOPMENT

Browse renewable energy training providers and university degree programs. Follow national workforce best practices.

[Read More](#)



## DSIRE INFORMATIONAL DATABASE

Discover information on government and utility incentives promoting renewable energy and energy efficiency.

[Read More](#)



## PUBLICATIONS AND REPORTS

Peruse IREC's model guides, reports, and best practices. Learn about Solar Licensing in the US.

[Read More](#)



## SMALL WIND ENERGY

Explore and exchange information on small wind energy issues.

[Read More](#)

# Market Framework

## Quality Training

### ISPQ Training Program Accreditation

- Training Programs
- Continuing Education
- Instructors



# Solar Training Goals





# Market Framework:

## Solar Market Pillars

- An educated consumer population **provides the foundation** for building a solar market
- Significant, long-term financial incentives **provide the initiative** for consumers and businesses
- Commitment to professional standards and quality training **promotes the sustainable growth** of solar businesses

# Wisconsin Market Framework– **Consumer Education**

- MREA Certified Site Assessors
  - Training
    - Load analysis, efficiency recommendations, siting, sizing, production estimate, financial information, cost modeling
  - Mentored practice assessments
  - SA test and certification

# Wisconsin Market Framework– **Consumer Education**

- Benefits of a Site Assessment Program,
  - Entry level work
  - Consumer education
  - Third party, standardized, peer reviewed data
  - Minimize installer site visits
  - Promotes ‘certified’ installers



# Wisconsin Market Framework– **Incentives**

- State Rebate Program
  - Utility Public Benefits Program, Focus on Energy
  - Site Assessment Rebate for CSAs
  - Installation Rebate for Full Service Installers
  - Rebate based on energy offset w/ efficiency premium
  - Rebate based on system design standards
  - Cash Back Reward From must be approved prior to installation
  - Information collection and feedback

# Wisconsin Market Framework: **Adherence to Standards**

- Certified Site Assessors
- Full Service Installers (ISPQ Accredited Training)
- NABCEP Certification

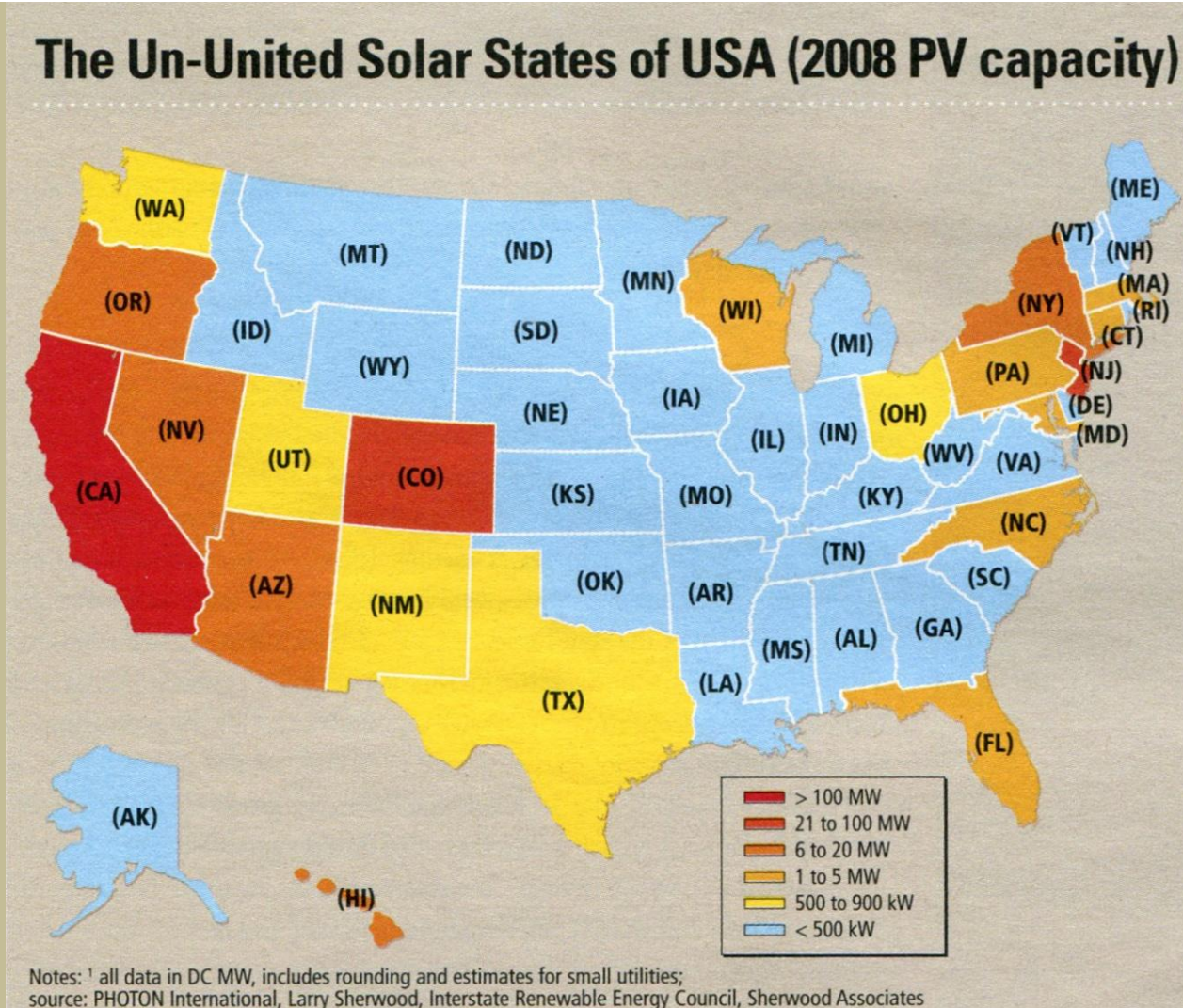
# Accomplishments

## **Trained Workforce**

- 121 Certified Site Assessors and growing
- 50 NABCEP Certified Installers and growing
- 10 ISPQ Certified Instructors and growing

# Accomplishments

## Capacity





# Accomplishments

## Sustained Growth

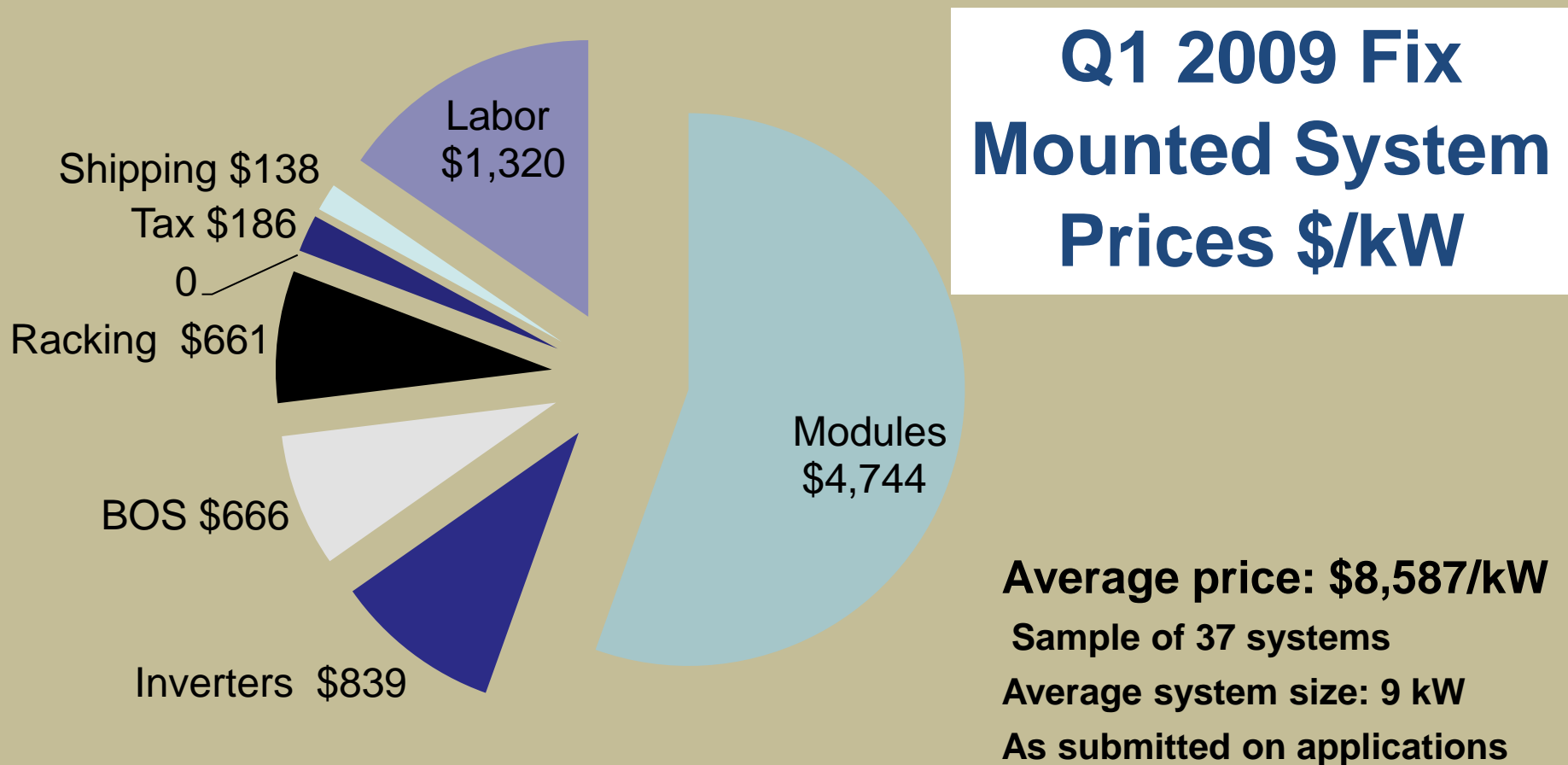
Year	2002	2003	2004	2005	2006	2007	2008	through Oct 31, 2009	2009 forecast
Kilowatts Installed	24	62	85	68	264	467	867	1,238	1,500
growth over previous year		156%	37%	-20%	287%	77%	86%	NA	73%
Compound annual growth rate from 2002			88%	41%	82%	81%	81.5%	NA	80%

Compound Annual Growth Rate: 80%

Focus on Energy Data from: Nov 1, 2009

# Accomplishments

## Partnership and Knowledge Sharing



# Questions?



Nick Hylla, [nick@the-mrea.org](mailto:nick@the-mrea.org)

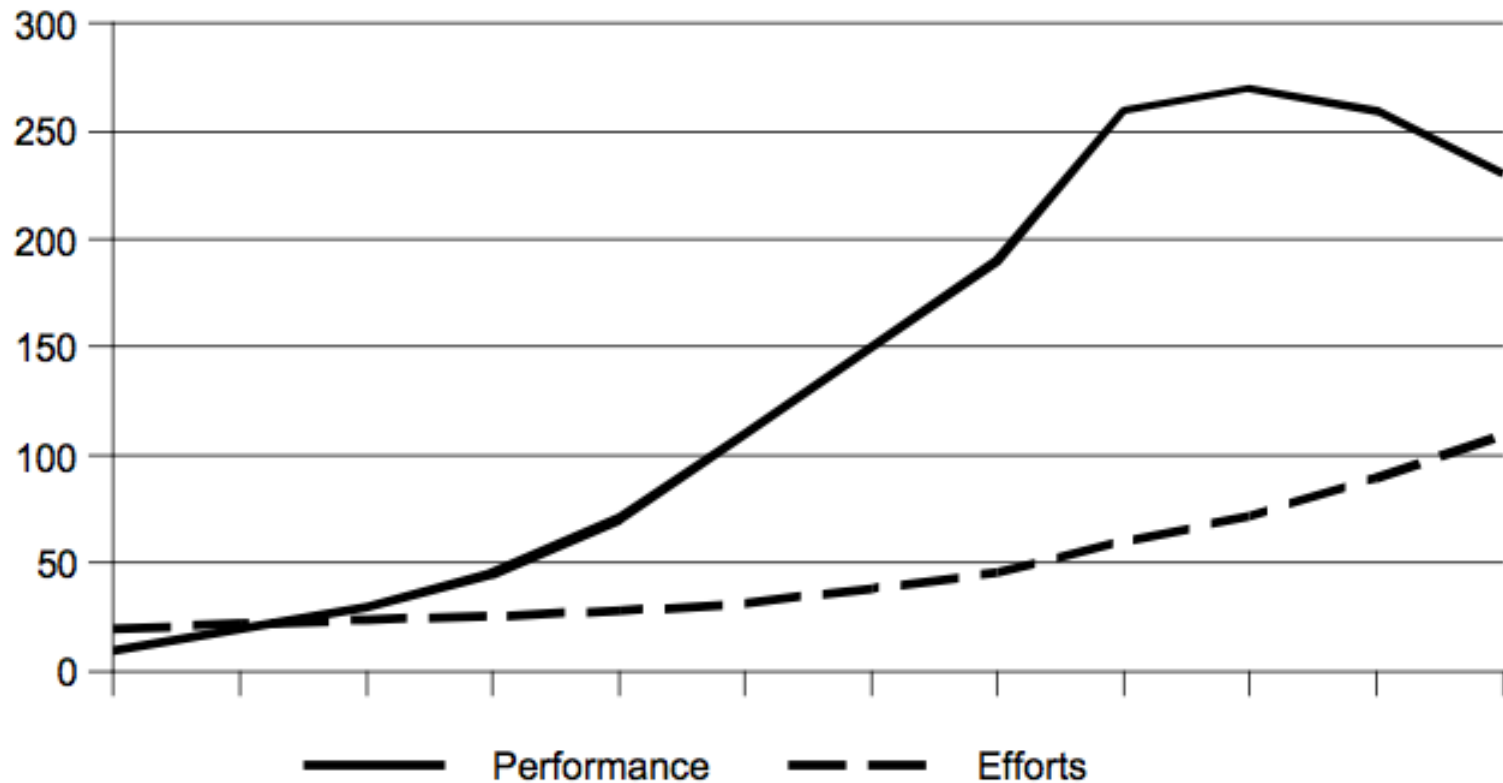
# Solar Market Challenges

- **System Archetypes**

- Limits to Growth (Our Debtor Society)
- Fixes that Fail (Efficiency and Conservation First!)
- Success to the Successful (Consolidation)

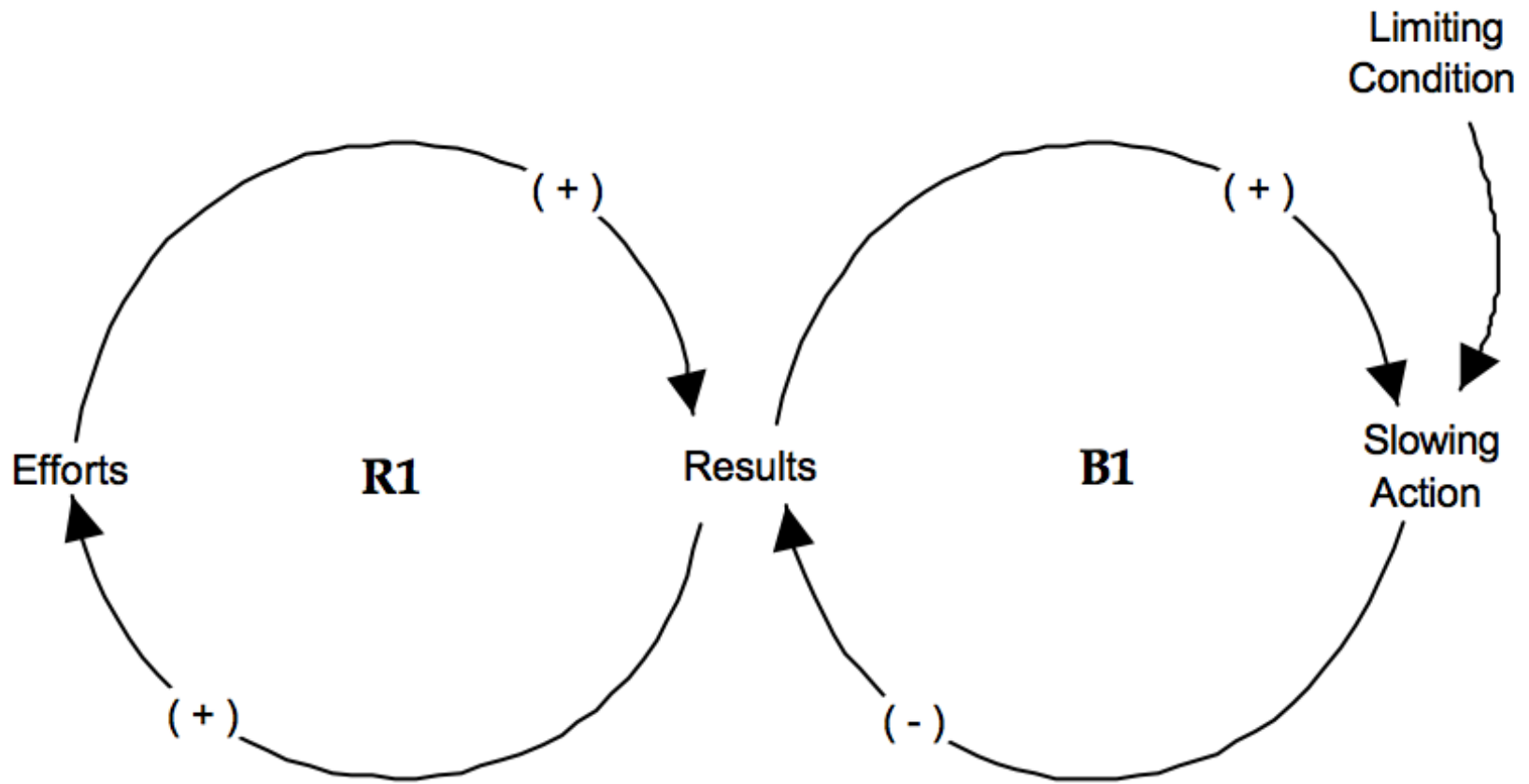


# Limits to Growth



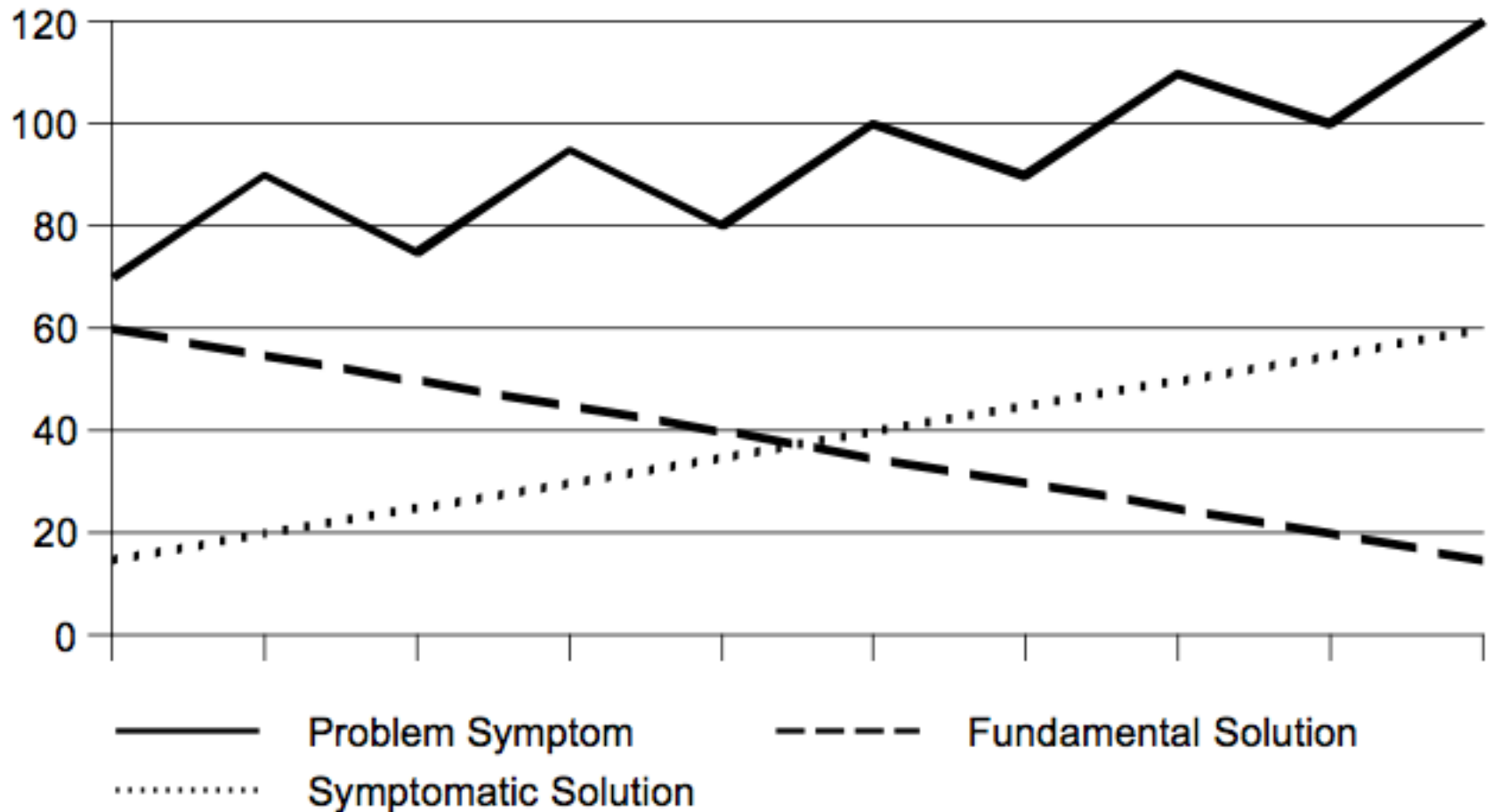
**Behavior Over Time**

# Limits to Growth



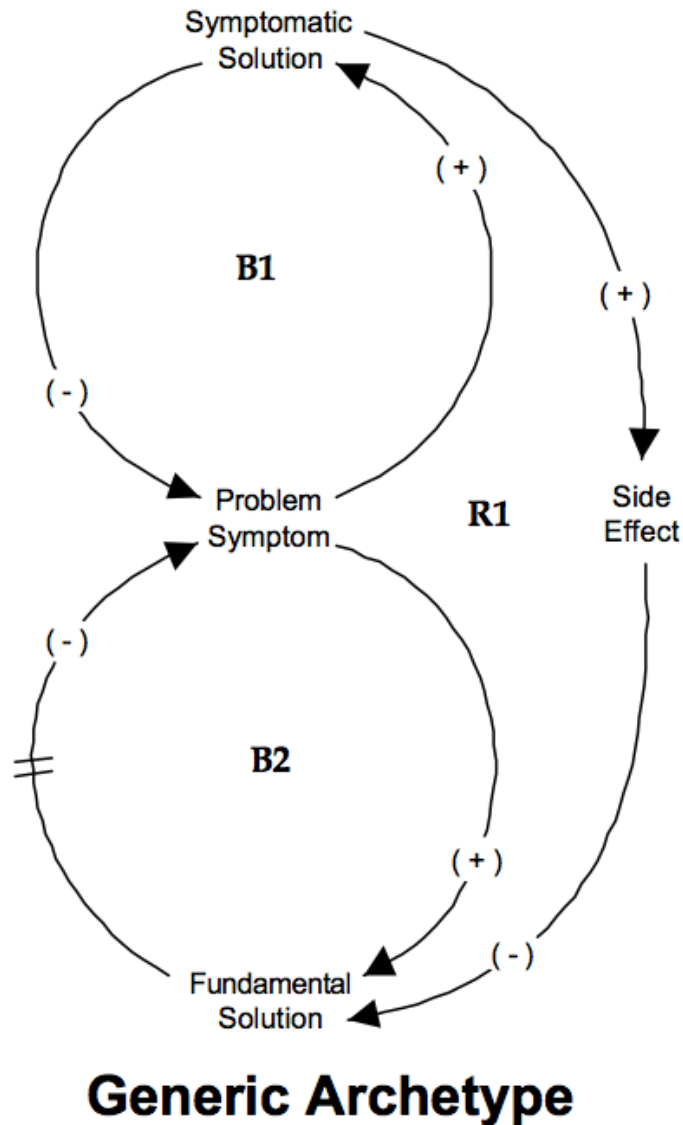
**Generic Archetype**

# Fixes that Fail



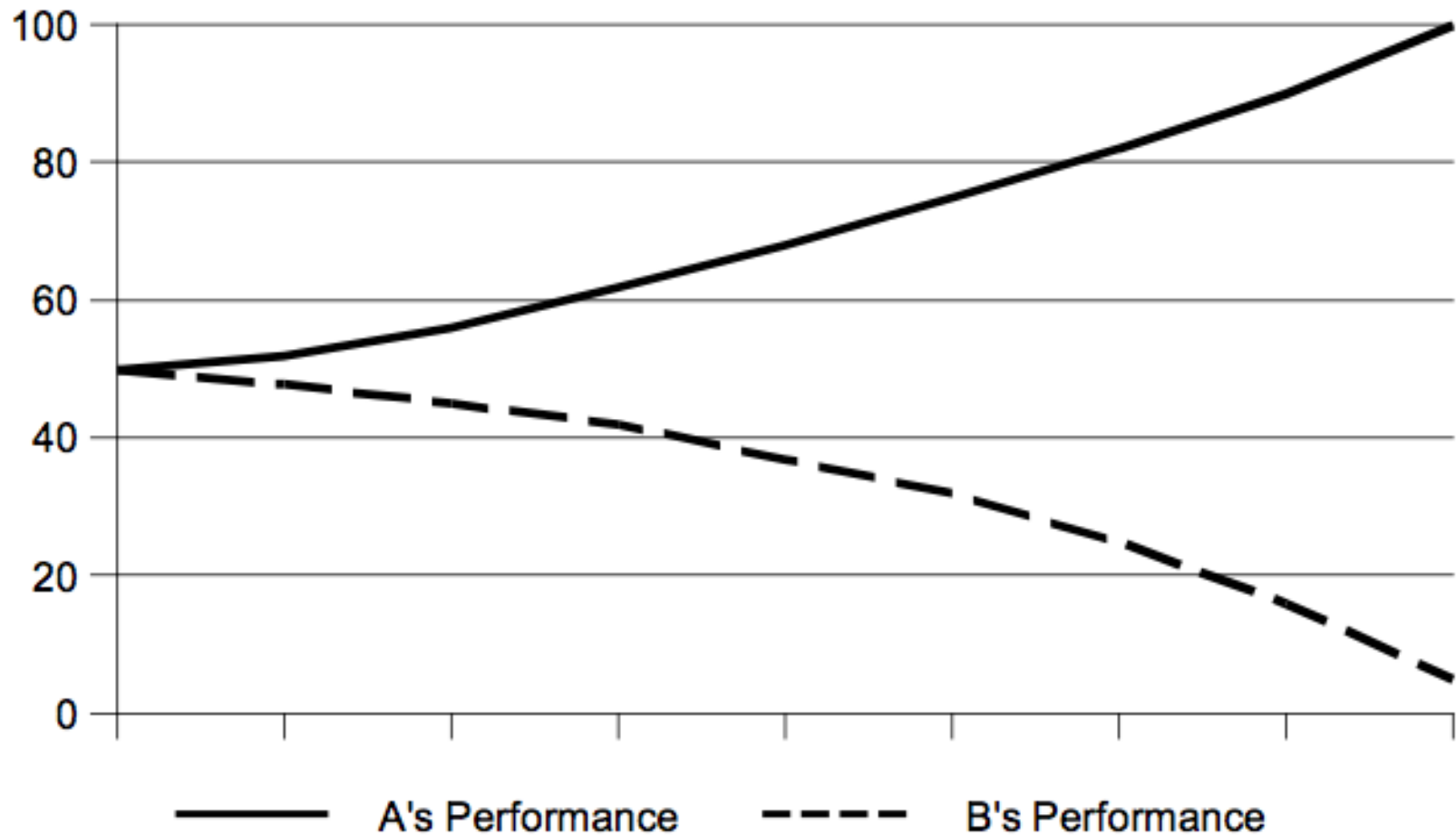
**Behavior Over Time**

# Fixes that Fail



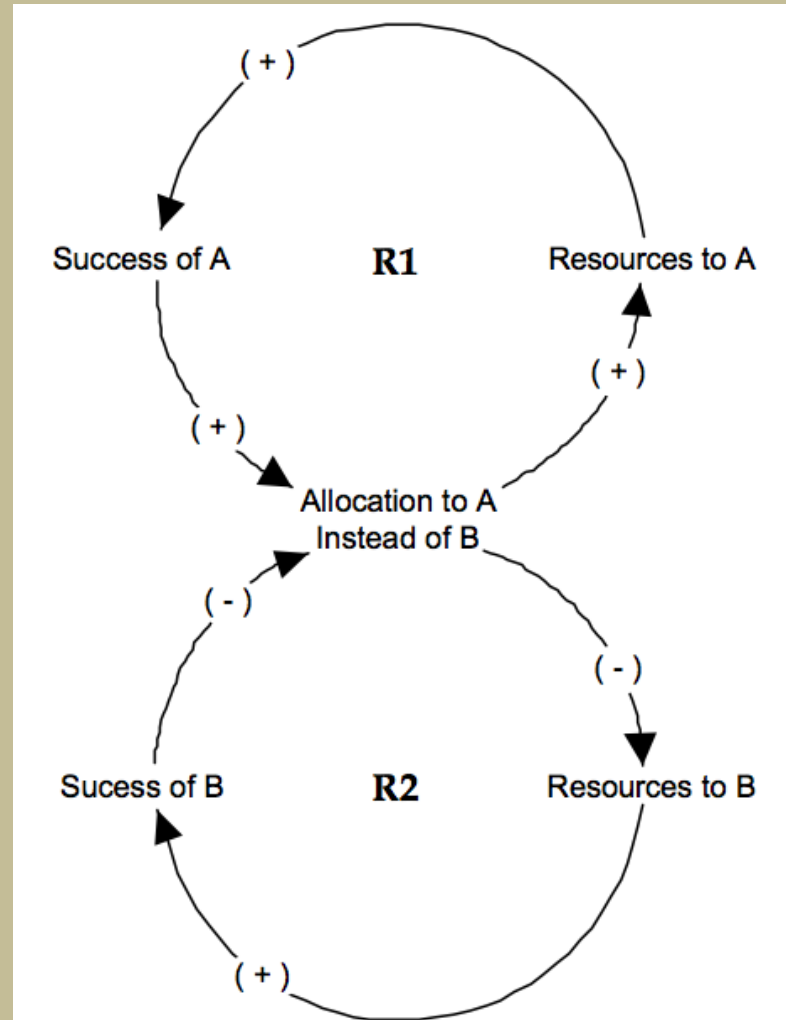


# Success to the Successful



**Behavior Over Time**

# Success to the Successful



**Generic Archetype**